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| 09/765,680      | 01/18/2001  | Juan R. Loaiza       | 50277-1633          | 6337             |

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EXAMINER

DOOLEY, MATTHEW C

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2133

DATE MAILED: 07/27/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/765,680

Applicant(s)

LOAIZA ET AL.

Examiner

Matthew C. Dooley

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9, 14-16, 18, 23-31, 38-40, 42 and 45-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-16, 18, 38-40, 42 and 45-48 is/are allowed.
- 6) ☒ Claim(s) 1-7, 23-29, 49-55, 58, 59, 61-63, 65-67 and 69 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 30, 31, 56, 57, 60, 64 and 68 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 13.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed on 04/19/2004 has canceled claims 10-13, 17, 19-22, 32-37, 41, and 43-44. As such, these claims will be dealt with no further in this or in any subsequent action. Remaining claims 1-9, 14-16, 18, 23-31, 38-40, 42, and 45-69 are pending and are dealt with below.

### ***Allowable Subject Matter***

2. Claims 14-16, 18, 38-40, 42, 45-48 are allowed.

Claims 14, 38, and 45 are directed to a software application used to perform a physical checksum of a block of data, while a component other than the software application is used to perform the physical checksum verification. This separation of software and hardware checking components, when taken in conjunction with the remaining limitations of claims 14, 38, and 45, make claims 14, 38, and 45 allowable over the prior art of record. Furthermore, claims 15-16, 18, 39-40, 42, and 46-48 further limit allowed claims 14, 38, and 45 and as such are also allowed.

3. Claims 8, 30, and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 8 includes allowable subject matter comprising software performing a checksum calculation and a logical check, in conjunction with one or more physical checksum procedures being performed by one or more non-software components. As

Art Unit: 2133

such, claim 8 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 30 discloses instructions carried out by one or more processors that correspond to method claim 8 above and as such, claim 30 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims using analogous reasoning to that set forth above in conjunction with claim 8. Claim 56 discloses a storage device configured to carry out method claim 8 and as such, claim 56 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims using analogous reasoning to that set forth above in conjunction with claim 8.

4. Claims 9, 31, and 57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to teach to the storage of a backup version of data maintained separately from said block of data in said nonvolatile memory, when the aforementioned limitations are taken in conjunction with rejected claims 1, 3, and 4. As such, claim 9 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 31 discloses instructions carried out by one or more processors that correspond to method claim 9 above and as such, claim 31 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims using analogous reasoning to that set forth above in conjunction with claim 9. Claim 57 discloses a storage device

Art Unit: 2133

configured to carry out method claim 9 and as such, claim 57 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims using analogous reasoning to that set forth above in conjunction with claim 9.

5. Claims 60, 64, and 68 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 60 includes allowable subject matter comprising software performing a checksum calculation and a logical check on a block of data, in conjunction a physical checksum procedure being performed by one or more non-software components. As such, claim 60 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 64 discloses instructions carried out by one or more processors that correspond to method claim 60 above and as such, claim 64 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims using analogous reasoning to that set forth above in conjunction with claim 60. Claim 68 discloses an apparatus configured to carry out method claim 60 and as such, claim 68 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims using analogous reasoning to that set forth above in conjunction with claim 60.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-7, 23-29, 49-55, 58-59, 61-63, 65-67, 69 are rejected under 35 U.S.C. 102(b) as being anticipated by DeRoo et al., U.S. 5,182,752.

As per claim 1:

DeRoo teaches to generating checksum data by performing a physical checksum calculation on a block of data (Col.5: 8-10), after generating the checksum, performing a logical check procedure on the data, and writing the data to nonvolatile memory if the data passes the check procedure (Fig.2; Col.5: 10-29).

As per claim 2:

DeRoo discloses performing the checksum and logical checks in response to a write request (Col.1: 9-16).

As per claim 3:

DeRoo discloses writing the checksum data to nonvolatile memory in association with the data block (Col.6: 14-16).

As per claim 4:

DeRoo teaches to after writing the data to nonvolatile memory, causing the data to be read from nonvolatile memory and performing a second physical checksum verification procedure on the data wherein the second verification indicates whether the

Art Unit: 2133

data was corrupted subsequent to performing the first physical checksum verification on the data (Col.6: 20-21; Col.6: 47-Col.7: 18).

As per claim 5:

DeRoo teaches to the checksum verification procedure includes the steps of performing a checksum verification procedure on the data prior to writing the block of data to nonvolatile memory, wherein the physical checksum verification procedure indicates whether the data was corrupted subsequent to performing the physical checksum calculation on the data (Col.5: 5-10).

As per claim 6:

Utilization of both hardware and software for checksum calculation and verification is known in the art and utilization of one technique respective to another can be made based on speed and size requirements. Therefore, the method of DeRoo is consistent with utilizing a software application for the checksum calculation, while utilizing another component, such as the component illustrated in Figure 2, for performing the first physical checksum verification procedure on the data prior to the writing of the data to the nonvolatile memory.

As per claim 7:

Utilization of both hardware and software for checksum calculation and verification is known in the art and utilization of one technique respective to another can be made based on speed and size requirements. Therefore, the method of DeRoo is consistent with utilizing a software application for the checksum calculation, while utilizing another component, such as the component illustrated in Figure 2, for

Art Unit: 2133

performing the first physical checksum verification procedure on the data prior to the writing of the data to the nonvolatile memory.

As per claims 23-29:

Claims 23-29 disclose instructions carried out by one or more processors that correspond to the rejected method claims 1-7 above and as such, claims 23-29 are rejected using analogous reasoning to that set forth in the rejection of claims 1-7 above.

As per claims 49-55:

Claims 49-55 disclose a storage device that is configured to carry out the method steps of the rejected method claims 1-7 above and as such, claims 49-55 are rejected using analogous reasoning to that set forth in the rejection of method claims 1-7 above.

As per claim 58:

DeRoo teaches to performing a physical checksum calculation on a block of data (Col.5: 8-10), performing a logical check procedure on the data, performing a checksum verification procedure on the data prior to writing the block of data to nonvolatile memory, wherein the physical checksum verification procedure indicates whether the data was corrupted subsequent to performing the physical checksum calculation on the data (Col.5: 5-10) and writing the data to nonvolatile memory if the data passes the check procedure and the checksum verification (Fig.2; Col.5: 10-29).



Art Unit: 2133

As per claim 59:

DeRoo teaches to a logical check being performed prior to the physical checksum verification (Col.5: 5-8).

As per claim 61:

DeRoo teaches to a logical check being performed after the physical checksum calculation (Col.5: 10-29).

As per claims 62-63, and 65:

Claims 62-63, and 65 disclose instructions carried out by one or more processors that correspond to the rejected method claims 58-59, and 61 above and as such, claims 62-63, and 65 are rejected using analogous reasoning to that set forth in the rejection of claims 58-59, and 61 above.

As per claims 66-67, and 69:

Claims 66-67, and 69 disclose an apparatus that is configured to carry out the method steps of the rejected method claims 58-59, and 61 above and as such, claims 66-67, and 69 are rejected using analogous reasoning to that set forth in the rejection of method claims 58-59, and 61 above.

### ***Response to Arguments***

8. Applicant's arguments filed 04/19/04 have been fully considered but they are not persuasive. The Applicant has argued that claims 1-9, 23-31, and 49-69 are patentable over DeRoo because DeRoo fails to teach to performing logical checks on the data block. The Applicant cites the fact that a parity check disclosed fails to encompass a logical check.

Art Unit: 2133

However, the Examiner would like to point out that the Applicant has described a logical check as “a mechanism whereby the integrity of the data is determined by comparing the data to certain predetermined characteristics that are expected to be associated with the data values”

(Specification: Pg.4: 6-8). The disclosed parity check of DeRoo falls within this definition of a logical check as described by the applicant. Word parity check circuit 30 (Fig.2) checks the word received from the ECD codec 28 (Fig.4) for errors, thus determining the data integrity by checking the predetermined characteristics, in this case its proper parity, that are expected to be associated with the data values (See. DeRoo: Col.5: 8 – 29). As such, DeRoo does in fact teach to a logical check, as well as a physical checksum calculation. Allowable subject matter not consummate with the argument put forth by the Applicant in paper 11, received 04/19/04, has been indicated above in the section titled “Allowable Subject Matter”, with corresponding reasons indicating allowable subject matter.

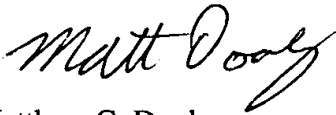
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Dooley whose telephone number is (703) 306-5538. The examiner can normally be reached on M-F 8:30-5:00.

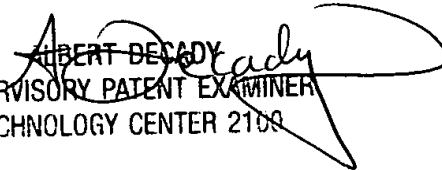
If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2133

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Matthew C. Dooley  
Examiner AU 2133  
07/23/04



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